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10/789,092	02/27/2004	Jeffery R. Hawver	87807NAB	7698

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EXAMINER	
MARTINEZ, CARLOS A	
ART UNIT	PAPER NUMBER
2853	

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/789,092

Applicant(s)

HAWVER, JEFFERY R.

Examiner

Carlos A. Martinez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/27/2004 (corrected on 03/20/2006) is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

The replacement drawings and annotated sheets were received on 03/20/2006. It is noted that these drawings are acceptable.

### ***Specification***

The specification corrections were received on 03/20/2006. It is noted that these corrections are acceptable.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-8, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bogart (US6452696) in view of Haas (US2004/0012824).

- Bogart discloses all the basic features of the instantly claimed invention: a printing apparatus for exposing an image onto a photosensitive medium (refer to Figure 2) with a linear array of exposure printhead (refer to element 1 of Figure 1 and lines 35-39, and 56-58 of column 3) having each exposure source operable at a variable intensity (refer to column 4, lines 20-23), a shuttle or carrying

frame/vehicle for moving the printhead over the photosensitive medium in a reciprocating motion between the carriage assembly (refer to element 15 of Figure 2 and line 67 of column 3 to line 2 of column 4), and an encoder coupled to the shuttle mechanism for providing an index signal at each of a plurality of incremental positions (refer to element 24 of Figure 2 and column 4, lines 7-9).

- Though Bogart teaches exposure correction for the exposure sources, Bogart fails to specifically teach an exposure control logic for calculating an instantaneous velocity according to index signal timing and for adjusting the intensity of the exposure source according a shuttle velocity.
- Though Haas does not specifically refer to a printing apparatus, Haas teaches an exposure control means/circuitry for adjusting/varying the exposure according to a velocity determined from the linear encoder of a movable exposure source (refer to paragraph 0027 and 0028). Further Haas mentions that shuttle (refer to element 101) velocity can be tracked by means of control electronics, software, and/or firmware to determine velocity and position at any point in time – which entails calculation of an instantaneous velocity value according to an index signal timing supplied by means of an encoder as one skilled in the art would recognize (refer to paragraph 0027 and 0028).
- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus of Bogart to include an exposure control logic for calculating an instantaneous velocity according to index signal timing and for adjusting the intensity of the exposure source

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according a shuttle velocity, as taught in Haas, for the purpose of managing/regulating the exposure/intensity of an exposure source moving at varying speeds.

With respect to claim 3, Bogart teaches an array of exposure sources made of an LED array (refer to column 3, lines 49-58).

With respect to claim 4, Bogart teaches a shuttle mechanism; however, Bogart fails to teach that the shuttle mechanism comprises a belt pulley. Haas teaches a shuttle/carriage mechanism which comprises a belt pulley (refer to paragraph [0007]). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the printing apparatus, as taught by Bogart, so that the shuttle mechanism comprises a belt pulley, as taught by Haas, for the purpose of utilizing a commonly used means to control reciprocating motion of a shuttle/carriage/printhead.

With respect to claim 5, Bogart teaches an encoder strip (refer to element 24 of Figure 2 and column 4, lines 8-10).

With respect to claim 6, Bogart teaches a device so that the photosensitive medium moves in a stepwise fashion between printing cycles (refer to column 4, lines 10-15).

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With respect to claim 7, Bogart teaches a device so that the photosensitive medium is motionless during each printing cycle (refer to column 4, lines 10-15).

With respect to claim 8, Bogart teaches a device so that an adjustment is capable of being made, the same, to the intensity of the exposure sources (refer to lines 10-14 of the abstract).

Further, with respect to claim 10, *the method of printing is anticipated based on the functions provided by the apparatus.*

Further, with respect to claim 13, Bogart teaches a device so that the photosensitive medium moves in a stepwise fashion between printing cycles (refer to column 4, lines 10-15).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bogart (US6452696) in view of Haas (US2004/0012824), as applied to claim 1 above, and further in view of Boqart (US6917447). Bogart (as modified by Haas) lacks the disclosing that a linear array of exposure sources could be comprised of red, green, or blue light sources; however, Boqart discloses exposure sources comprised of red, green, or blue light sources (refer to lines 3-6 of abstract). Therefore, it would have been obvious to one of ordinary skill in the art to modify the printing apparatus of Bogart (as modified by Haas) with a linear array of exposure sources could be comprised of red, green, or blue light sources, as taught in Bogart, for the purpose of providing color imaging.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bogart (US6452696) in view of Haas (US2004/0012824) and further in view of McCoy (US6576883).

- Bogart discloses all the features of the instantly claimed invention: an exposure source for scanning an image onto a photosensitive medium (refer to Figure 2), a shuttle or carrying frame/vehicle for moving the printhead across/over the photosensitive medium in a scanning motion (refer to element 15 of Figure 2 and line 67 of column 3 to line 2 of column 4), and an encoder coupled to the shuttle mechanism for providing an index signal at each of a plurality of incremental positions (refer to element 24 of Figure 2 and column 4, lines 7-9).
- Though Bogart teaches a method of uniform (refer to lines 4-14 of abstract) exposure correction for the exposure sources, Bogart fails to specifically mention the calculating of an instantaneous velocity and full scale correction factor according to index signal timing, the multiplying of a full scale correction factor to the target exposure intensity, or the adjusting/correcting the intensity of the exposure source according to a velocity as recited in the instant claims.
- Haas teaches the use of an exposure control means/circuitry for adjusting/varying the exposure according to a velocity determined from the linear encoder of a movable exposure source (refer to paragraph 0027 and 0028). Further Haas mentions that shuttle (refer to element 101) velocity can be tracked by means of control electronics, software, and/or firmware to determine velocity and position at any point in time – which entails calculation of an instantaneous velocity value according to an index signal timing supplied by means of an encoder as one

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skilled in the art would recognize (refer to paragraph 0027 and 0028). However, Haas fails to teach the multiplying of a full scale correction factor to the target exposure intensity. McCoy teaches the multiplying of a full scale correction factor to the target exposure intensity (refer to lines 23-54 of column 3 and lines 54-61 of column 5).

- It would have been obvious to one having skill in the art at the time the invention was made to combine/modify the method of Bogart to include the use of an exposure control means/circuitry for adjusting/varying the exposure according to an instantaneous velocity determined from the linear encoder of a movable exposure source and to include the calculating of an instantaneous velocity and the use of a full scale factor to apply to the target exposure intensity for adjusting/correcting the intensity of the exposure, as taught by Haas and McCoy, for the purpose of image quality when printing at varying speeds and for the purpose of managing/regulating the exposure/intensity of an exposure source moving at varying speeds. Further, it should be officially noted that though multiplication of a corrective factor is not specifically mentioned the use of multiplication is obvious as a part of factoring in a correction value.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bogart (US6452696) in view of Haas (US2004/0012824) and further in view of Hirahata (US5311216).

- Bogart discloses all the features of the instantly claimed invention: an exposure source for scanning an image onto a photosensitive medium (refer to Figure 2), a



shuttle or carrying frame/vehicle for moving the printhead across/over the photosensitive medium in a scanning motion (refer to element 15 of Figure 2 and line 67 of column 3 to line 2 of column 4), and an encoder coupled to the shuttle mechanism for providing an index signal at each of a plurality of incremental positions (refer to element 24 of Figure 2 and column 4, lines 7-9).

- Though Bogart teaches a method of uniform (refer to lines 4-14 of abstract) exposure correction for the exposure sources, Bogart fails to teach the calculating of a velocity, the deriving of a fractional correction factor, the multiplying of the calculated correction factor for correcting exposure, or the adjusting/correcting the intensity of the exposure source according to a velocity as recited in the instant claims.
- Haas teaches the calculating of a velocity and the use of such value in applying to the target exposure intensity for adjusting/correcting the intensity of the exposure (refer to paragraph 0027 and 0028). Further Haas mentions that shuttle (refer to element 101) velocity can be tracked by means of control electronics, software, and/or firmware to determine velocity and position at any point in time – which entails calculation of an instantaneous velocity value according to an index signal timing supplied by means of an encoder as one skilled in the art would recognize (refer to paragraph 0027 and 0028). However, Haas fails to teach the deriving of a fractional correction factor and the multiplying of the calculated correction factor for correcting exposure. Hirahata teaches the use of a fractional correction

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factor and the multiplying of the calculated correction factor for correcting exposure (refer to lines 11-15 of the abstract and lines 7-19 of column 3).

- Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the method of Bogart for the calculating of a velocity, the deriving of a fractional correction factor, the multiplying of the calculated correction factor for correcting exposure, or the adjusting/correcting the intensity of the exposure source, as taught in Haas and Hirahata, for the purpose of managing/regulating the exposure/intensity of an exposure source moving at varying speeds and simplifying the calculation of the correction factor and providing an alternative means of calculation.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1 and 3-13 have been considered but are moot in view of the new ground(s) of rejection necessitated by applicant's amendment.

With respect to applicant's argument regarding the Bogart reference (US6452696), the Office agrees that the reference does not deal specifically with intensity control related to non-linear velocity of a carriage shuttle mechanism; however, the use of the Bogart reference by the Office is for the purpose of establishing the known limitations presented with respect to an exposure source for scanning an image onto a photosensitive medium (refer to Figure 2), a shuttle or carrying frame/vehicle for moving the printhead across/over the photosensitive medium in a scanning motion (refer to element 15 of Figure 2 and line 67 of column 3 to line 2 of column 4),

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and an encoder coupled to the shuttle mechanism for providing an index signal at each of a plurality of incremental positions (refer to element 24 of Figure 2 and column 4, lines 7-9). As such, Bogart does indeed provide teaching applicable towards applicants stated claims.

With respect to the Haas reference (US2004/0012824), the Office still deems the reference appropriate and the arguments related to the reference as appropriate since the applicant does not address the Haas reference in the applicant's response.

With respect to the Boqart reference (US6452696), the Office still deems the reference appropriate and the arguments related to the reference as appropriate since the applicant does not address the Boqart reference in the applicant's response.

With respect to the Hirahata reference (US5311216), the Office still deems the reference appropriate and the arguments related to the reference as appropriate since the applicant does not address the Hirahata reference in the applicant's response.

7. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., detection of instantaneous shuttle velocity and derivation of instantaneous correction which are feed back into the exposure intensity control system providing continuous accurate exposure during random velocity perturbations) are not recited in the rejected claim(s). Although the claims are

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interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### ***Contact Information***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos A. Martinez whose telephone number is (571) 272-8349. The examiner can normally be reached on 8:30 am - 5:00 pm (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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